

## INTERNATIONAL SEARCH REPORT

PCT/IB2004/004426

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7 C12P13/08 C12N9/04 C12N15/53 C12N1/21 //(C12N9/04,C12R1:15)		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 7 C12P C12N		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, BIOSIS, WPI Data, PAJ, EMBASE, FSTA, EMBL		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/07626 A (O'DONOHUE, MICHAEL, R; HANKE, PAUL, D; ARCHER-DANIELS-MIDLAND COMPANY) 1 February 2001 (2001-02-01)  the whole document	1-3, 9-23, 28-41, 44,45, 48,49, 53,54
X	MARX ET AL: "Response of central metabolism in Corynebacterium glutamicum to the use of an NADH-dependent glutamate dehydrogenase" METABOLIC ENGINEERING, ACADEMIC PRESS,, US, vol. 1, 1999, pages 35-48, XP002154493 ISSN: 1096-7176 the whole document	1-3, 9-14,16, 17,23, 29,30, 32,33, 38-41, 48,49, 53,54
-/-		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
27 May 2005		11 JUL 2005
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer  Wiame, I

# INTERNATIONAL SEARCH REPORT

PCT/IB2004/004426

Box No. 1 Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
  - a. type of material
    - ☒ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material
    - ☒ in written format
    - ☒ in computer readable form
  - c. time of filing/furnishing
    - ☒ contained in the international application as filed
    - ☒ filed together with the international application in computer readable form
    - ☐ furnished subsequently to this Authority for the purpose of search
2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

## INTERNATIONAL SEARCH REPORT

PCT/IB2004/004426

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>PARK S M ET AL: "METABOLIC AND PHYSIOLOGICAL STUDIES OF CORYNEBACTERIUM GLUTAMICUM MUTANTS" BIOTECHNOLOGY AND BIOENGINEERING, INTERSCIENCE PUBLISHERS, LONDON, GB, vol. 55, no. 6, 1997, pages 864-879, XP000999162 ISSN: 0006-3592 the whole document</p>	<p>1-3, 9-14, 16, 23, 29, 30, 32, 38-41, 48, 49, 53, 54</p>
X	<p>WO 01/00844 A (BASF AG) 4 January 2001 (2001-01-04)</p> <p>abstract; claim 36; table 1 page 61 SEQ ID NO:135,136 page 7, line 13 - line 29</p>	<p>22-28, 38-41, 46-54</p>
X	<p>PATENT ABSTRACTS OF JAPAN vol. 1999, no. 13, 30 November 1999 (1999-11-30) -&amp; JP 11 206385 A (MITSUBISHI CHEMICAL CORP), 3 August 1999 (1999-08-03) abstract</p>	<p>22-28, 38-41, 48-54</p>
X	<p>US 2002/055152 A1 (BATHE BRIGITTE ET AL) 9 May 2002 (2002-05-09)</p> <p>the whole document</p>	<p>22-25, 28-41, 46-50, 53, 54</p>
X	<p>HOLS P ET AL: "Conversion of Lactococcus lactis from homolactic to homoalanine fermentation through metabolic engineering" NATURE BIOTECHNOLOGY, NATURE PUBLISHING, US, vol. 17, no. 6, June 1999 (1999-06), pages 588-592, XP002225554 ISSN: 1087-0156 abstract</p>	<p>22-28, 39, 49-52</p>
X	<p>GOKARN R R ET AL: "The physiological effects and metabolic alterations caused by the expression of Rhizobium etli pyruvate carboxylase in Escherichia coli." APPLIED MICROBIOLOGY AND BIOTECHNOLOGY. JUL 2001, vol. 56, no. 1-2, July 2001 (2001-07), pages 188-195, XP002287974 ISSN: 0175-7598 abstract; figure 1 page 193, column 1, paragraph 1; table 3</p>	<p>22-27, 49-52</p>
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PCT/IB2004/004426

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DOMINGUEZ H ET AL: "CARBON-FLUX DISTRIBUTION IN THE CENTRAL METABOLIC PATHWAYS OF CORYNEBACTERIUM GLUTAMICUM DURING GROWTH ON FRUCTOSE" EUROPEAN JOURNAL OF BIOCHEMISTRY, BERLIN, DE, vol. 254, no. 1, 15 May 1998 (1998-05-15), pages 96-102, XP000960354 ISSN: 0014-2956 cited in the application the whole document	1-54
A	----- BOTT MICHAEL ET AL: "The respiratory chain of Corynebacterium glutamicum." JOURNAL OF BIOTECHNOLOGY. 4 SEP 2003, vol. 104, no. 1-3, 4 September 2003 (2003-09-04), pages 129-153, XP002288114 ISSN: 0168-1656 page 137, column 1, paragraph 2 - page 138, column 1, paragraph 2	46,47
A	----- KIEFER P ET AL: "Influence of glucose, fructose and sucrose as carbon sources on kinetics and stoichiometry of lysine production by Corynebacterium glutamicum." JOURNAL OF INDUSTRIAL MICROBIOLOGY & BIOTECHNOLOGY. JUN 2002, vol. 28, no. 6, June 2002 (2002-06), pages 338-343, XP002287975 ISSN: 1367-5435 abstract; figure 5 page 341, column 1, paragraph 1	1-54
A	----- SAHM H ET AL: "PATHWAY ANALYSIS AND METABOLIC ENGINEERING IN CORYNEBACTERIUM GLUTAMICUM" BIOLOGICAL CHEMISTRY, XX, XX, vol. 381, no. 9/10, September 2000 (2000-09), pages 899-910, XP000979510 ISSN: 1431-6730 abstract; table 2	1-54
A	----- PEQUIGNOT C ET AL: "Effect of oxygen transfer and carbon source composition on the growth of Corynebacterium melassecola" BIOPROCESS ENGINEERING 1995 GERMANY, vol. 13, no. 4, 1995, pages 197-204, XP008032761 ISSN: 0178-515X abstract	1-54
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	MARX ACHIM ET AL: "Determination of the fluxes in the central metabolism of Corynebacterium glutamicum by nuclear magnetic resonance spectroscopy combined with metabolite balancing" BIOTECHNOLOGY AND BIOENGINEERING, vol. 49, no. 2, 1996, pages 111-129, XP002287973 ISSN: 0006-3592 abstract; figure 3 page 115, column 1, paragraph 1 - column 2 -----	13
A	WO 03/014330 A (KREUTZER CAROLINE ; DEGUSSA (DE); BATHE BRIGITTE (DE); MOECKEL BETTINA) 20 February 2003 (2003-02-20) abstract; example 1 -----	14,16,17
P,X	KIEFER PATRICK ET AL: "Comparative metabolic flux analysis of lysine-producing Corynebacterium glutamicum cultured on glucose or fructose." APPLIED AND ENVIRONMENTAL MICROBIOLOGY. JAN 2004, vol. 70, no. 1, January 2004 (2004-01), pages 229-239, XP002287976 ISSN: 0099-2240 the whole document -----	1-54

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